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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/705,955

11/13/2003

Masaru Kuribayashi

Q78397

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23373

7590

02/22/2006

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EXAMINER

SMITH, TYRONE W

ART UNIT

PAPER NUMBER

2837

DATE MAILED: 02/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/705,955	Applicant(s) KURIBAYASHI ET AL.	
	Examiner Tyrone W. Smith	Art Unit 2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/8/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's arguments and amendment see after-final amendment filed December 28, 2005, with respect to claims 1-11 has been fully considered and is persuasive. The finality of the last office action has been withdrawn. However, upon further search of the case Examiner found other reference(s) that can be applied to the rejected claims.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-9^{are} rejected under 35 U.S.C. 103(a) as being unpatentable over Kajiura (6713888) in view of N'Guyen (4803376).

Regarding Claims 1, 8 and 9. Kajiura discloses a vehicle motor generator apparatus utilizing synchronous machine having field winding which includes a stator (Figure 1 item 120) having three phase armature winding and a rotor (Figure 1 item 110) composed of a field winding (Figure 1 item 111; column 3 lines 37-43) for magnetizing a plurality of field magnetic poles and permanent magnets (Figure 1 item 111; column 3 lines 37-43) for magnetizing field magnetic poles by interaction with the field winding, an [AC-DC and DC-AC] electrical power converter [AC-DC and DC-AC] (Figure 1 item 200) which performs as a rectifier when the rotary machine is operated as a generator (column 9 lines 52-67), and performs as an inverter when the rotary machine is operated as a motor (column 9 lines 52-67); and a control device (Figure 1

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item 400; column 9 lines 1-55) for controlling the [AC-DC and DC-AC] electrical power converter. However, Kajiura does not disclose a control device that controls an electrical power converter or similar so as to restrict the armature current at the time of low speed rotation.

N'Guyen discloses a control method for a motor generator for motor vehicle control which includes stator (three phase armature windings) (Figures 12-14 item 4) and rotor with a field winding (Figures 12-14 item 1); a electronic switching means (converter/inverter) (Figure 1 items Q1-Q6) and electronic control module controls the armature and field current to obtain a desired characteristic (column 12 lines 63-68 and column 13 lines 1-10); the machine is operated as a motor and the strength of the current flowing in a armature is limited (restricted) to a predetermined value for speed of rotation ranging from zero (low-speed) to a limit value.

It would have been obvious to one of ordinary skill in the art at the time of invention to use Kajiura's a vehicle motor generator apparatus utilizing synchronous machine having field winding with N'Guyen's control method for a motor generator for motor vehicle control. The advantage of combining the two would provide a system to regulate the armature in such a way as to limit the intensity of the current flowing in the armature to a predetermined value for rotational speeds from zero speed to a limit value.

Regarding Claim 2. Kajiura discloses a field current control device controlling a field current flowing through the field winding, wherein when the rotary machine is operated as a motor, the field current control device is controlled by the control device to increase said field current at the time of low speed rotation. Refer to column 23 lines 25-35.

It would have been obvious to one of ordinary skill in the art at the time of invention to use Kajiura's a vehicle motor generator apparatus utilizing synchronous machine having field winding with N'Guyen's control method for a motor generator for motor vehicle control. The advantage of combining the two would provide a system to regulate the armature in such a way

as to limit the intensity of the current flowing in the armature to a predetermined value for rotational speeds from zero speed to a limit value.

Regarding Claim 3. Kajiura discloses a field current control device controlling a field current flowing through the field winding, wherein when the rotary machine is operated as a motor, the control device to reduce the field current at the time of high-speed rotation controls the field current control device. Refer to column 23 lines 36-48.

It would have been obvious to one of ordinary skill in the art at the time of invention to use Kajiura's a vehicle motor generator apparatus utilizing synchronous machine having field winding with N'Guyen's control method for a motor generator for motor vehicle control. The advantage of combining the two would provide a system to regulate the armature in such a way as to limit the intensity of the current flowing in the armature to a predetermined value for rotational speeds from zero speed to a limit value.

Regarding Claims 4-6. Kajiura discloses a vehicle motor generator apparatus utilizing synchronous machine having field winding which includes a stator (Figure 1 item 120) having three phase armature winding and a rotor (Figure 1 item 110) composed of a field winding (Figure 1 item 111; column 3 lines 37-43) for magnetizing a plurality of field magnetic poles and permanent magnets (Figure 1 item 111; column 3 lines 37-43) for magnetizing field magnetic poles by interaction with the field winding, an [AC-DC and DC-AC] electrical power converter [AC-DC and DC-AC] (Figure 1 item 200) which performs as a rectifier when the rotary machine is operated as a generator (column 9 lines 52-67), and performs as an inverter when the rotary machine is operated as a motor (column 9 lines 52-67); and a control device (Figure 1 item 400; column 9 lines 1-55) for controlling the [AC-DC and DC-AC] electrical power converter. Refer to the abstract.

It would have been obvious to one of ordinary skill in the art at the time of invention to use Kajiura's a vehicle motor generator apparatus utilizing synchronous machine having field winding with N'Guyen's control method for a motor generator for motor vehicle control. The advantage of combining the two would provide a system to regulate the armature in such a way as to limit the intensity of the current flowing in the armature to a predetermined value for rotational speeds from zero speed to a limit value.

Regarding Claim 7 where the limitation states the armature current at the time of low speed rotation is limited to 300amperes or below. A particular parameter must first be recognized as a result-effective variable, i.e., a variable, which achieves a recognized result, before the determination of the optimum or workable ranges of, said variable might be characterized as routine experimentation. In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). Claim 7 provides a range from 300 amperes or below which can be considered a routine range. Refer the Chapter 2100 section 2144.05 of the M.P.E.P.

3. Claims 10 and 11 rejected under 35 U.S.C. 103(a) as being unpatentable over over Kajiura (6713888) in view of N'Guyen (4803376) as applied to claims 1-9 above, and further in view of Asao et al (JP11-136913).

Kajiura discloses a vehicle motor generator apparatus utilizing synchronous machine having field winding which includes a stator (Figure 1 item 120) having three phase armature winding and a rotor (Figure 1 item 110) composed of a field winding (Figure 1 item 111; column 3 lines 37-43) for magnetizing a plurality of field magnetic poles and permanent magnets (Figure 1 item 111; column 3 lines 37-43) for magnetizing field magnetic poles by interaction with the field winding, an [AC-DC and DC-AC] electrical power converter [AC-DC and DC-AC] (Figure 1 item 200) which performs as a rectifier when the rotary machine is operated as a generator

(column 9 lines 52-67), and performs as an inverter when the rotary machine is operated as a motor (column 9 lines 52-67); and a control device (Figure 1 item 400; column 9 lines 1-55) for controlling the [AC-DC and DC-AC] electrical power converter. However, Kajiura does not disclose a control device that controls an electrical power converter or similar so as to restrict the armature current at the time of low speed rotation.

N'Guyen discloses a control method for a motor generator for motor vehicle control which includes stator (three phase armature windings) (Figures 12-14 item 4) and rotor with a field winding (Figures 12-14 item 1); a electronic switching means (converter/inverter) (Figure 1 items Q1-Q6) and electronic control module controls the armature and field current to obtain a desired characteristic (column 12 lines 63-68 and column 13 lines 1-10); the machine is operated as a motor and the strength of the current flowing in a armature is limited (restricted) to a predetermined value for speed of rotation ranging from zero (low-speed) to a limit value.

However, neither Kajiura nor N'Guyen discloses each of the adjacent claw-shaped pole pieces is magnetically shorted by a magnetic bridge element at the periphery of the claw-shaped poles, and the permanent magnets are disposed inside of said bridge elements.

Asao discloses a rotor of rotary electric machines, which includes each of the adjacent claw-shaped pole pieces, is magnetically shorted by a magnetic bridge element at the periphery of the claw-shaped poles, and the permanent magnets are disposed inside of said bridge elements. Refer to the abstract and Figures 1-14.

It would be obvious to one of ordinary skill at the time of invention to use Kajiura's a vehicle motor generator apparatus utilizing synchronous machine having field winding with N'Guyen's control method for a motor generator for motor vehicle control and Asao's a rotor of rotary electric machines. The advantage of combining the two would provide a system that would provide a rotor of rotary electric machine, which can prevent breakdown of a magnet,

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which is arranged between the pawl type magnetic poles in order to reduce the amount of leakage of magnetic flux between the pawl type magnetic poles.

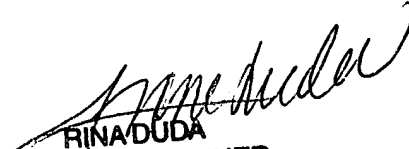
4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tyrone W. Smith whose telephone number is 571-272-2075. The examiner can normally be reached on weekdays from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula Bradley, can be reached on 571-272-2800 ext. 33. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tyrone Smith
Patent Examiner

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RINA DUDA
PRIMARY EXAMINER